

LOWER POTOMAC—ST. MARY’S RIVER WATERSHED RESTORATION FEASIBILITY STUDY

QUALITY CONTROL (QC) AND INDEPENDENT TECHNICAL REVIEW (ITR) PLAN

1.0 PURPOSE

This Review Plan presents the process that assures quality products for the Lower Potomac—St. Mary’s River Watershed Restoration Feasibility Study, General Investigation (GI) Feasibility Study. This QC and ITR Plan define the responsibilities and roles of each member on the study and technical review team.

Because the FCSA was signed in 2001, it was expected that the study was grandfathered under the implementation guidance for EC1105-2-408 dated May 31, 2005. However, revised guidance received in March 2007 has lifted the grandfathering conditions. Therefore, ITR is now required. This QC and ITR plan will document existing ITR processes and identify future actions to make the study compliant with existing policy.

Under the provisions of new U.S. Army Corps of Engineers (USACE) policy, as detailed in, the ITR will be conducted by specialists from organizations outside of the district responsible for the study. Independent Technical Review will be conducted for all decision documents and will be independent of the technical production of the project.

2.0 APPLICABILITY

This document provides the Quality Control Plan for the Feasibility Study. It identifies quality control processes and independent technical review for all work to be conducted under this study authority, including in-house, sponsor and contract work.

3.0 REFERENCES

EC1105-2-408 “Peer Review of Decision Documents” dated May 31, 2005
ER 1105-2-100 “Planning Guidance Notebook & Appendices”

4.0 GENERAL PROJECT DESCRIPTION

The Lower Potomac—St. Mary’s River Watershed Restoration Study was designed to develop watershed restoration tools for St. Mary’s County, Maryland. St. Mary’s County is a rapidly growing county of southern Maryland and is experiencing associated environmental impacts. The first phase focused on environmental planning products, including watershed assessments, baseline stream data, and sensitive species management tools. These documents were stand alone documents, designed to help steer development in a more environmentally sensitive manner.

The second phase of the project addressed specific projects that could be implemented to improve the watershed and developed restoration projects. The District found that it was

practical to work in two major areas—the upstream areas of the St. Mary’s River Watershed, where older development was not optimized and in the receiving estuaries, where severe oyster and SAV loss has dramatically reduced the estuarine environment. Several project categories were developed including (1) hydrology restoration, (2) oyster restoration, and (3) SAV restoration. These categories were analyzed to develop an overall restoration plan. The plan includes 28 hydrologic modifications, (2) 1360 acres of SAV seeding, and (3) 462 acres of oyster restoration. The project is expected to cost \$43 million over the next 25 years.

5.0 REVIEW REQUIREMENTS

Initial Quality Control (QC) review will be handled within the Section or Branch performing the work or by staff in the corresponding Sponsor Department when it involves In-Kind Services. Additional QC will be performed by the PDT during the course of completing the integrated Feasibility Study. The detailed checks of computations and methodology should be performed at the District level, and the processes for this level of review are well established.

Pursuant to EC 1105-2-408, item 2 c (2), Models used in the preparation of decision documents covered by this Circular will be reviewed in accordance with EC 1105-2-407, Planning Models Improvement Program: Model Certification, and are not subject to the requirements of this Circular. The uses and applications of models in individual studies that lead to the preparation of decision documents covered by this Circular will be reviewed in accordance with the requirements of this Circular.

Pursuant to EC 1105-2-408, due to the complex nature of this project the integrated Feasibility Report will need an ITR team assigned by the Planning Center of Expertise (PCX) for Environmental Restoration (National Ecosystem Planning) Projects. Dr. Dave Vigh (CEMVD-RB-T) will assign this team. It is recommended that the ITR be handled entirely within USACE, as the scope and technical complexity do not warrant an External Peer Review (EPR), based upon the initial Risk Screening Process conducted by the Project Development Team (PDT) noted in Section 9. It is anticipated that while this study will be challenging and beneficial, it will not be novel, controversial or precedent setting, nor have significant national importance. As a result, the ITR will focus on:

- Review of the planning process and criteria applied.
- Review of the methods of preliminary analysis and design.
- Compliance with authority and NEPA requirements.
- Completeness of preliminary design and support documents.
- Spot checks for interdisciplinary coordination.

6.0 REVIEW PROCESS

It is anticipated that the ITR Team Review Process will begin after the ITR Team has been assigned, and will cover the feasibility study and associated products developed to date. As alternative plans are formulated, the Review Process will focus on data, assumptions and the engineering, scientific, economic, social & environmental analysis process. Major Review Process milestones are listed below:

- Approval of Review Plan by NAD
- ITR team assigned by PcX
- P-8 Milestone – AFB RAM
- AFB
- Draft Report Review
- Final Report Review

7.0 REVIEW COST

The cost of the ITR is estimated to be about \$. It is assumed that documents to be reviewed will be transmitted electronically. Comments will be made and addressed in Dr. Checks. It is also assumed that the external ITR team will be working virtually. Only under extreme circumstances should the external ITR team, or a representative of that team, be required to physically attend team or milestone meetings. The team should participate in all P milestone meetings; however, via conference call or video tele-conference.

8.0 REVIEW SCHEDULE

Note that since the commencement of this study preceded the requirement for PcX involvement and development of this Review Plan, the review schedule below does not match the major review process milestone list above.

| TASK | START DATE | FINISH DATE |
|---|-------------|-------------|
| Develop ITR Plan & post to Web Site, PCX | 15-April-07 | 30-Apr-07 |
| Identify Regional ITR resources & Recommend ITR Plan to PCX | 15 May 07 | 21 May 07 |
| PCX Approves or Assigns ITR Team | 30 May 07 | |
| Review of Draft Feasibility Report | 30 June 07 | |
| Review Final Feasibility Report | 31 Oct 07 | |

9.0 PROJECT RISK

The PDT members were asked to rate their assessment of the risk associated with this project based upon five factors and rate the project quantitatively among five levels of project risk of failure ranging from low to high. Based upon this analysis by the PDT, the project is projected to be low in risk. The PDT considered previous District project experience when making this analysis. No attempt was made to tie this to a national scale of rating, so it is likely that the risk level would have been lower if the team were to have compared the risk of this project to a large ecosystem restoration project. The Project Delivery Team (PDT) scored each item in the QCP Score Guide (Table 1) to get an average score. The Project schedule and cost were assessed as a low degree of risk if they both remained flexible and a high degree of risk if the Project schedule and cost was fixed. Staff Technical Experience was assessed as a low degree of risk if the staff had a high level of ecosystem restoration experience and a high degree of risk if the staff had a low level of ecosystem restoration experience. The score for the risk items were summed and the average value of the Risk Assessment Score was used to determine the overall level of project risk. The results of the evaluation are tabulated as follows:

Table 9.1 Quality Control/Review Plan Score Guide

| Project Risk Item | Risk Assessment Score (Low Degree to High Degree) | | | Score |
|--|--|--------|------|------------|
| | Low | Medium | High | |
| Project Complexity | 1 2 | 3 4 | 5 | 3 |
| Customer Expectations | 1 2 | 3 4 | 5 | 3 |
| Product Schedule/Cost | 1 2 | 3 4 | 5 | 2 |
| Staff Technical Experience | 1 2 | 3 4 | 5 | 4 |
| Failure Impact and Consequences | 1 2 | 3 4 | 5 | 2 |
| Average Project Risk Assessment Score | | | | 2.8 |

10.0 REVIEW PLAN

The components of the Review Plan (external ITR only) were developed pursuant to the requirements of EC1105-2-408.

10.1 Review tasks to date

The late stage of this study includes several ITR activities conducted prior to the lifting of the ITR grandfathering clause. Included in QC activities prior to the ITR requirement include:

1. Coordination and review by the College of St. Mary's Biology Department. Several professors and field technicians were instrumental in the design, review, and development of the study. This included the verification of data, analysis approach, and results.
2. Internal QC. Internal QC was conducted in the period from August 2006 through March 2007, where several rounds of comments were integrated into the draft report. Three separate reviews and backchecks were held during this period.
3. HQ Issue Resolution Conference. An Issue Resolution Conference (IRC) was held on 4 May 2006. This meeting addressed components of the report and issues. RAM was circulated to HQ prior to the meeting. The RAM and Final MFR are attached.

10.1 Team Information

The decision documents that will be the ultimate focus of the peer review process are the integrated Feasibility Report, the Division Commander's Public Notice, and the Environmental Record of Decision (ROD) for the Lower-Potomac—St Mary's River Watershed Restoration Study. The purpose of the decision document will be to begin the approval process leading to the authorization to begin Plans & Specifications.

The PDT is listed as follows. This list provides the names and points of contact of NAB team members that are available to answer specific technical questions as part of the Peer Review Process. The list also provides the names and organization of participating outside entities.

District PDT Members:

Steven Kopecky, CENAB-PL
Project Manager
410.962.3413

Mike Martyn, CENAB-EN
Civil Engineer
410.962.7967

Angie Sowers, CENAB-PL
Environmental Specialist
410.962.7440

Non-District PDT Members:

Sue Vieth
Environmental Planner
St. Mary's County Maryland

Chris Tanner
St. Mary's College
SAV restoration

Bob Paul PhD.,
St. Mary's College
GIS analysis

Independent Technical Review Team:

NEP PCX to Provide the Name, Organization, Discipline, Phone, & E-Mail for these disciplines-

Planning
Economics
Ecology
Real Estate
Engineering

**Pending Approval by Division

10.2 Scientific Information

Based upon the self-evaluation by the PDT, it is unlikely that the USACE report to be disseminated will contain influential scientific information. The environmental restoration measures that were identified were evaluated using standard hydrologic, hydraulic, geotechnical and economic processes.

Economic and planning processes will additionally consider the Collaborative Planning EC. This EC describes all the economic accounts that can be used to describe economic benefits. The four main economic accounts are national economic development (NED), national ecosystem restoration (NER), regional economic development (RED), and the other social effects (OSE).

While the restoration of these watersheds and estuaries is a key component of the Chesapeake Bay Program goals, the efforts envisioned to date will not result in a highly influential scientific assessment.

10.3 Timing

The ITR process is envisioned to begin spring 2007 with an assessment of key models to be used in the evaluation and comparison of alternative plans in this feasibility study. It is anticipated that work would start within days of naming the external ITR team. The estimated schedule is noted in Part 8 of this QCP.

10.4 External Peer Review Process

No External Peer Review process is envisioned at this time. This assessment is supported by the evaluation of the PDT in March 2007 and tabulated as shown in Section 9 of this QCP.

10.5 Public Comment

Public involvement is anticipated throughout the Feasibility Study. The Public Involvement meeting dates have not been scheduled at this time.

It is anticipated that minutes of Public Involvement Meetings will be disseminated to the Peer Review Team following the meetings. This will allow the public response to be available to the ITR team.

10.6 ITR Reviewers

It is anticipated that two key reviewers are required and should be available in the following disciplines:

1) Planning, 2) Economics, 3) Ecology, 4) Real Estate, and 5) Engineering. The reviewer contact information should be stated in Section 10.1 of this QCP.

The expertise that should be brought to the review team includes the following:

- 1) Planning – The reviewer should have recent experience in reviewing Plan Formulation processes for multi-objective studies and be able to draw on “lessons learned” in advising the PDT of best practices.
- 2) Economics – The reviewer should have a solid understanding of Economic Models including cost effective incremental cost analysis (e.g. IWR Plan Suite) and Hedonic Pricing and their application to ecological
- 3) Ecology – The reviewer should have a solid background in the restoration of tidal wetlands, oyster and SAV habitats, and understand the factors that influence the reestablishment of native species of plants and animals.

- 4) Real Estate - the reviewer should have a solid background in real estate requirements and the use of easements for environmental restoration.
- 5) Engineering - The majority of this study does not use heavily engineered structures. Therefore, the reviewer should be familiar with low tech design techniques and ecological methods.

10.7 External Peer Review Selection

Because an External Peer Review is not anticipated for this study, there is no EPR selection